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Destremps

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[54] **FINGER ACTIVATED KEYBOARD FOR A COMPUTER**

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[52] **U.S. Cl.** **341/31**; 341/22; 345/170; 250/221

[58] **Field of Search** 341/20, 22, 31; 345/167, 168, 170; 250/221; 400/477, 479

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,372,789	3/1968	Thiele et al.	341/31
3,851,328	11/1974	Sottile et al.	341/31
3,886,544	5/1975	Naroduy	341/31
4,379,968	4/1983	Ely et al.	341/31
4,641,026	2/1987	Garcia, Jr.	341/26
4,655,621	4/1987	Holden	341/20
4,800,264	1/1989	Vissiere	341/31
4,931,794	6/1990	Haag et al.	341/31

FOREIGN PATENT DOCUMENTS

0665302	5/1979	U.S.S.R.	341/31
1443201	12/1988	U.S.S.R.	341/31

OTHER PUBLICATIONS

IBM Technical Disclosure Bulletin, vol. 27, No. 10B, Mar. 1985, "Mouse/Keyboard Concept Incorporating Unique Devices for Controlling CRT display cursors".

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[57] **ABSTRACT**

A keyboard in which each key includes a light source and photodetector in a region such as a depression in a panel. The key signal is activated by inserting the finger into the depression so as to interrupt the beam. In one embodiment, the depressions are molded into a plastic surface. In another embodiment, the key support structure is a pair of closely spaced parallel panels. An array of key holes are formed in in one panel. An array of detecors and light sources is mounted on the second panel such that when the panels are assembled together, a light source detector pair is located with each key hole providing that the beam between the light source and photodetector will be interrupted when the user inserts his finger in the hole. In another embodiment, the key board has a pyramidal shape and armrests are provided to reduce repetitve motion stress. In a further modification, the pyramidal keyboard is provided with a computer ball so that the ball can be moved at the same time that varioosu combinations of keys are depressed to perform a selected one of a number of operations such as measuring the length of a line, coloring in an enclosure, etc.

9 Claims, 3 Drawing Sheets